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## The influence of dietary habits on fatty acid composition of visceral adipose tissue in colorectal cancer and obesity

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**Introduction:** Colorectal Cancer (CRC) is one of the major causes of cancer-related mortality in both men and women worldwide. Obesity and dietary habits are primary determinants of cancer risk. We have previously demonstrated the existence of a pro-inflammatory microenvironment associated with a particular Fatty Acid (FA) profile in adipocytes of CRC patients. Stearoyl-CoA-desaturase 1 (SCD-1) is involved in pathways regulating lipid metabolism and is differentially expressed in normal and tumor tissues.

**Aim:** To define the eating habits of four different groups of subjects lean (nw) and obese (ob), affected or not, by CRC evaluating the possible association with functional and metabolic alterations. These data could allow understanding whether the quality of the diet, other than the quantity of energy consumed, might have a main contribution in maintaining the AT altered microenvironment observed in CRC-affected subjects.

**Methodology:** AT biopsies (n=20/category) were collected and analyzed for FA composition by gas-liquid chromatography. Desaturase activities were estimated as FA product-to-precursor ratio. Food intake was estimated by an interviewer-guided FFQ. The intakes of energy and nutrients were calculated by the WINFOOD software.

**Results:** Inadequate dietary habits characterize ob and CRC subjects. Furthermore, nwCRC patients showed an increased intake of SFA and a reduction of MUFA consumption. Estimated SCD-1 activity in AT was increased in all subject groups in comparison with lean individuals.

**Conclusions:** Unhealthy eating habits characterize obese and CRC subjects. The quality of the diet, other than the quantity of energy consumed, might have a contribution in maintaining the inflammatory microenvironment in AT observed in CRC-affected subjects.

### Biography

Massimo D'Archivio has been studying the role of dietary polyphenols and n-3 fatty acids in preventing the development of chronic-degenerative diseases, unraveling the molecular mechanisms by which these compounds exert their biological activities. He has collaborated in nutritional intervention studies, investigating the role played by dietary polyphenols and/or different fatty acids in counteracting inflammatory/oxidative processes in obesity and T2D. Finally, he has been studying the mechanisms responsible for the pathogenesis of obesity and its complications in human primary adipocytes isolated from visceral fat biopsies, assessing the relationship between obesity and chronic-degenerative diseases, highlighting the influence of the dietary habits.

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